

**BY ORDER OF THE CHIEF,  
NATIONAL GUARD BUREAU**



**MANPOWER STANDARD 23CISO**

**1 DECEMBER 2004**

***Manpower Standard***

***PROPULSION EC-130E (RIVET RIDER)***

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This Air National Guard Manpower Standard (ANGMS) quantifies the manpower required to accomplish the tasks described in the process oriented description (POD) for varying levels of workload in the Propulsion EC-130E (Rivet Rider). This ANGMS applies to the Propulsion EC-130E, Rivet Rider mission only, at the 193rd SOW, PA. This standard applies to peacetime operations only. The Air National Guard (ANG) is the authority for the approval and publication of ANG Manpower Standards. Air Force (AF) and ANG directives contain policy and procedural guidance for the operation of the Rivet Rider function. This standard was developed in accordance with AF Instruction (AFI) 38-201, *Determining Manpower Requirements*, and AF Manual (AFMAN) 38-208, Volume 1, *Air Force Management Engineering Program (MEP) - Processes*, and AFMAN 38-208, Volume 2, *Air Force Management Engineering Program (MEP) - Quantification Tools*. Send comments and suggested improvements on AF IMT 847, *Recommendation for Change of Publication*, through channels, to ANG, Management Engineering Branch (ANG/XPME/Operating Location TN [OLTN]), 106 Briscoe Drive, McGhee Tyson ANG Base, TN 37777-6283.

## **1. STANDARD DATA.**

1.1. Approval Date: 1 December 2004.

1.2. Man-hour Data Source: Operational Audit method (historical record and technical estimate techniques).

1.3. Standard Man-hour Equation:  $Y = 475.2 + 4.230(X1) + 62.05(X2)$ .

1.4. Workload Factor.

1.4.1. Titles:

1.4.1.1. X1 = A Programmed Flying Hour.

1.4.1.2. X2 = A Primary Aircraft Vehicle Authorized.

1.4.2. Definition:

1.4.2.1. X1 = Monthly number of flying hours programmed.

1.4.2.2. X2 = Average monthly primary aircraft authorized.

1.4.3. Source: USAF Program Document (PD), Volume II maintained by ANG/XPPI.

1.4.4. Points of Contact.

1.4.4.1. Functional: Lt Col Robert Hoback, ANG/LGY

1.4.4.2. Manpower: Mr. Steve Griffith, XPME, Engineering Branch

## 2. APPLICATION INSTRUCTIONS.

2.1. Step 1. Man-hour Equation. Apply the man-hour equation in Paragraph 1.3., to determine required man-hours.

2.2. Step 2. Man-hour Availability Factor (MAF). Divide the resulting man-hours by the appropriate MAF times the overload factor.

2.3. Step 3. Upper and Lower Extrapolation Limits:

2.3.1.  $Y_U = 1744.68$

2.3.2.  $Y_L = 1046.53$

2.4. Step 4. Air Force Specialty Codes (AFSC) Requirement. Use the Manpower Table Attachment 3 to determine required AFSCs.

**3. STATEMENT OF CONDITIONS.** The conditions listed below had no affect on the development of this standard: minimum response rates, minimum manpower levels, standardized crew complements, safety considerations, aircraft turn-around time, length of waiting periods, levels of backlog and hours of operation.

DANIEL JAMES III, Lieutenant General, USAF  
Director, Air National Guard

**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION***References*

AFI 38-201, *Determining Manpower Requirements*

AFMAN) 38-208, Volume 1, *Air Force Management Engineering Program (MEP)-Processes*

AFMAN 38-208, Volume 2, *Air Force Management Engineering Program (MEP) - Quantification Tools*

*Abbreviations and Acronyms*

**AF** - Air Force

**AFMS** - Air Force Manpower Standard

**AFSC** - Air Force Specialty Codes

**AFTO** – Air Force Technical Order

**AGE** - Aerospace Ground Equipment

**ANG** - Air National Guard

**ANGI** - Air National Guard Instruction

**ANGMS** - Air National Guard Manpower Standard

**FMB** - Financial Management Board

**MAF** - Man-hour Availability Factor

**MEP** - Management Engineering Program

**MSDS** - Material Safety Data Sheets

**PD** - Program Document

**PMEL** - Precision Measurement Laboratory

**POD** - Process Oriented Description

**TCTO** - Time Compliance Technical Order

**UTA** - Unit Training Assembly

**WLF - Work Load Factors***Terms*

**Air National Guard Manpower Standard (ANGMS).** A numbered, specialized publication that quantifies manpower requirements for a work center. Also includes approved variances. See AFI 38-201.

**Man-hour.** A unit of measuring work. It is equivalent to one person working at a normal pace for 60 minutes, two people working at a normal pace for 30 minutes, or a similar combination of people working at a normal pace for a period to time equal to 60 minutes.

**Manpower Standard.** The basic tool used to determine the minimum level of manpower required to support a function. It is a quantitative expression that represents a work center's man-hour requirements in response to varying levels of workload.

**Process Oriented Description.** A format that shows work center responsibilities structured for easy measurement of work categories, tasks and subtasks.

## Attachment 2

PROCESS ORIENTED DESCRIPTION  
PROPULSION

Table A2.1. Listing of Functional Processes.

1.	ON AND OFF EQUIPMENT MAINTENANCE.
1.1.	MAINTAINS TURBOPROP POWER PLANT SYSTEM. Inspects, troubleshoots and repairs on-equipment.
1.1.1.	MAINTAINS NACELLE SYSTEM.
1.1.2.	MAINTAINS AIR INDUCTION SYSTEM.
1.1.3.	MAINTAINS EXHAUST SECTION.
1.1.4.	MAINTAINS IGNITION AND ELECTRICAL SYSTEM.
1.1.5.	MAINTAINS ENGINE CONTROL SYSTEM.
1.1.6.	MAINTAINS ENGINE STARTER SYSTEM.
1.1.7.	MAINTAINS ENGINE INSTRUMENT SYSTEM.
1.1.8.	REMOVES AND REPLACES ENGINE, QUICK ENGINE CHANGE, COMPRESSOR MODULE, TURBINE MODULE, AND REDUCTION GEAR BOX.
1.1.9.	MAINTAINS ACCESSORY DRIVE SECTION AND OIL SYSTEM.
1.1.10.	MAINTAINS COMPRESSOR SECTION AND MODULE.
1.1.11.	MAINTAINS COMBUSTION SECTION.
1.1.12.	MAINTAINS TURBINE SECTION.
1.1.13.	MAINTAINS FUEL SYSTEM.
1.1.14.	MAINTAINS REDUCTION GEAR SYSTEM.
1.1.15.	MAINTAINS TORQUEMETER ASSEMBLY.
1.1.16.	MAINTAINS TURBINE MODULE.
1.1.17.	MAINTAINS BLEED AIR DUCTING.

1.1.18.	MAINTAINS ENGINE AND GENERATOR SYSTEM.
1.1.19.	MAINTAINS HYDRAULIC PUMP.
1.1.20.	MAINTAINS FUEL FLOW TRANSMITTER.
1.2.	MAINTAINS GAS TURBINE COMPRESSOR.
1.3.	MAINTAINS PROPELLER INSTALLATION ASSEMBLY. Inspects, troubleshoots, and repairs on-equipment.
1.4.	MAINTAINS ANTI-ICING AND DE-ICING SYSTEM.
2.	PERFORMS SCHEDULED INSPECTION.
2.1.	PERFORMS SPECIAL INSPECTION.
2.2.	PERFORMS ISOCHRONAL INSPECTION.
2.3.	PERFORMS HOME STATION CHECK.
3.	SHOP SUPPORT GENERAL CODE.
3.1.	PERFORMS GROUND HANDLING.
3.2.	PERFORM AIRCRAFT CLEANING.
3.3.	PREPARES ENGINE, PROPELLER, GAS TURBINE, COMPRESSOR, FUEL AND OIL COMPONENTS FOR PRESERVATION, DEPRESERVATION, STORAGE OR SHIPMENT.
3.4.	PERFORMS GENERAL SHOP SUPPORT. Performs shop support task to include local manufacture item.
3.5.	PERFORMS TEST CELL RUN-UP.
3.6.	PERFORMS TEST CELL MAINTENANCE. Performs scheduled inspection, troubleshoots, repairs and services fuel, oil, hydraulic, fire, electrical, electronic and control component.
3.7.	PERFORMS AIRCRAFT RUN-UP. Performs aircraft run-up.
4.	TIME COMPLIANCE TECHNICAL ORDER (TCTO). Performs maintenance required on/off the aircraft in accordance with applicable TCTO and completes documentation.

5.	SPECIAL PLANNING OR SCHEDULING. Performs planning or scheduling associated with preparation for unit training assembly, (UTA), annual tour, mobility/deployment participation, or other special program.
5.1.	PREPARES FOR UTA.
5.2.	PREPARES FOR MOBILIZATION/DEPLOYMENT PARTICIPATION.
6.	TRAVEL. Travel as it relates to the EC-130E engine mission. Travel time for getting to and from workshop, conference, and meeting.
7.	MAINTENANCE AUTOMATED SYSTEM. Makes input to Core Automated Maintenance System. Retrieves, analyzes and reconciles data.
8.	HAZARDOUS WASTE PROGRAM MANAGEMENT
8.1.	PROCESSES HAZARDOUS WASTE. Identifies, labels, contains, and disposes of hazardous waste.
8.2.	MAINTAINS COLLECTION FACILITY. Maintains hazardous waste accumulation point, satellite collection area, and container.
8.3.	MAINTAINS PROTECTIVE EQUIPMENT. Inspects and maintains protective equipment.
8.4.	PARTICIPATES IN POLLUTION, PREVENTION AND REDUCTION PROGRAMS. Attends training classes in chemical reduction and management. Monitors level of usage.
9.	FOREIGN OBJECT DAMAGE WALK/INSPECTION. Performs walk around the maintenance complex and runway for debris.
10.	PRECISION MEASUREMENT LABORATORY (PMEL) RUN. Delivers PMEL to areas off base for calibration.
11.	BENCH STOCK.
11.1.	MAINTAINS BENCH STOCK. Determines requirement, obtains party from Supply stores in bin upon receipt and maintains required documentation.
11.2.	PERFORMS ANNUAL BENCH STOCK REVIEW.
12.	NON-POWERED AEROSPACE GROUND EQUIPMENT (AGE)/SHOP AND INDUSTRIAL EQUIPMENT. Inspects and repairs non-powered AGE and shop industrial equipment.

13.	MATERIEL SAFETY DATA SHEETS (MSDS). Updates MSDS file to maintain serviceability.
14.	TECHNICAL DATA SUBACCOUNT MAINTENANCE. Receives and posts technical data, changes, and supplements to technical order file. Maintains and inventories file for serviceability. Recommends and initiates technical order improvement reports (AFTO 22).
15.	ASSISTANCE. Assists other maintenance work center in the performance of maintenance related tasking.
16.	AIRCREW DEBRIEFING. Conducts aircrew debriefing. Completes appropriate documentation.
17.	INDIRECT. Indirect work involves those tasks that are not readily identifiable with the work center's specific product or service. The major categories of standard indirect work are: Administers Civilian, Officer, and Enlisted Personnel; Directs Work Center Activity; Provides Administrative Support; Prepares for and Conducts/Attends Meeting; Administers Training; Manages Supplies; Maintains Equipment; and Performs Cleanup



## Attachment 3

## MANPOWER TABLE

Table A3.1. Standard Manpower Table.

WORK CENTER/FAC Propulsion/FAC 23C1SO		APPLICABILITY MANHOUR RANGE 1046.53 – 1744.68						
Air Force Specialty Title	AFSC	Grade	Manpower Requirement					
Aircraft Engine Mechanic	2A671	Civ	7	8	9	10	11	
Total			7	8	9	10	11	

**NOTE** AFSCs may be adjusted at the discretion of the Commander.